CLAIMS

We claim:

1.   A transient load generator for testing a microelectronic power delivery system, the generator comprising:

         a first voltage source;

         a control circuit coupled to the first voltage source;

         a transistor having a gate region coupled to the control circuit; and

         a second voltage source coupled to a drain region of the transistor.

2.   A power regulation system comprising the transient load generator of claim 1.

3.   A transient load generator for testing a microelectronic power delivery system, the generator comprising:

         a first voltage source having a first output voltage;

         a second voltage source having a second output voltage, wherein the second output voltage is greater than the first output voltage;

         a first current source coupled to the second voltage source;

         a second current source coupled to the second voltage source;

         a control circuit configured to receive an input trigger signal and transmit a corresponding signal to the second current source to switch the current source from an off state to an on state;

         a first transistor coupled to the first voltage source and the first current source; and

         a second transistor coupled to the second voltage source and the first transistor.

4.   The transient load generator of claim 3, wherein the first current source is coupled in parallel to the second current source.

5.   The transient load generator of claim 3, wherein the first transistor is a bipolar transistor having a base region coupled to the first current source and a collector region coupled to the first voltage source.

6.   The transient load generator of claim 3, wherein the second transistor is a bipolar transistor having a base region coupled to the second current source, a collector region coupled to the second voltage source, and an emitter region coupled to the first transistor.

7.   The transient load generator of claim 3, further comprising a resistor coupled between the first current source and the first transistor.

8.   The transient load generator of claim 3, further comprising a diode coupled to the second current source.

9.   The transient load generator of claim 3, further comprising a diode coupled to the first current source.

10.   A power regulation system comprising the transient load generator of claim 3.

11.   A transient load generator for testing a microelectronic power delivery system, the generator comprising:

        a first voltage source having a first output voltage;

        a second voltage source having a second output voltage, wherein the second output voltage is greater than the first output voltage;

        a current source coupled to the second voltage source;

        a first transistor coupled to the current source and to ground; and

        a second transistor coupled to the current source and to ground.

12.   The transient load generator of claim 11, wherein the first and second transistors comprise MOS transistors.

13.   The transient load generator of claims 12, wherein a gate region of the first transistor is coupled to the gate region of the second transistor.

14.   A power regulation system comprising the transient load generator of claim 11.

15.   An assembly for validating a microelectronic power regulation system, the assembly comprising:
       a substrate; and
       at least one transient generator coupled to a first portion of the substrate.

16.   The assembly of claim 15, further comprising a plurality of transient generators coupled to the substrate, wherein the plurality of generators is configured to emulate transient events produced by a microprocessor.

17.   The assembly of claim 15, further comprising at least one decoupling capacitor coupled to a second portion of the substrate.

18.   The assembly of claim 15, further comprising at least one secondary power regulator coupled to the substrate.

19.   The assembly of claim 15, comprising a plurality of transient generators, wherein each of the transient generators is configured to allow independent amplitude and spatial control of the output power, to emulate microprocessor transient power.